

Name

ANSWER KEY

Variables and Equations

Solving Inequalities with Multiple Operations

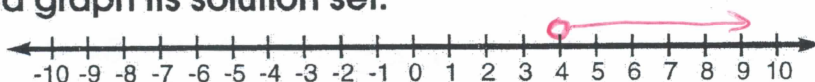
$$\begin{aligned}
 -11n + 4 &\leq 48 \\
 -11n + 4 - 4 &\leq 48 - 4 \\
 -11n &\leq 44 \\
 n &\geq -4
 \end{aligned}$$



Solve each inequality and graph its solution set.

1. $6x - 3 > 21$

$$\begin{array}{r}
 +3 \quad +3 \\
 6x - 3 > 21 \\
 \hline
 6x > 24 \\
 \div 6 \quad \div 6 \\
 x > 4
 \end{array}$$



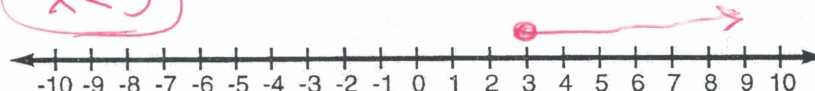
2. $5 > 4x - 7$

$$\begin{array}{r}
 +7 \quad +7 \\
 5 > 4x - 7 \\
 \hline
 12 > 4x \\
 \div 4 \quad \div 4 \\
 3 > x
 \end{array}$$



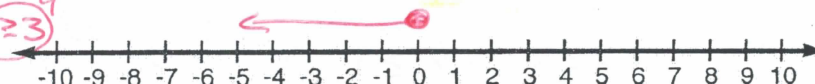
3. $3(3c - 4) \geq 15$

$$\begin{array}{r}
 9c - 12 \geq 15 \\
 +12 \quad +12 \\
 \hline
 9c \geq 27 \\
 \div 9 \quad \div 9 \\
 c \geq 3
 \end{array}$$



4. $-5x - 10 \geq -10$

$$\begin{array}{r}
 +10 \quad +10 \\
 -5x - 10 \geq -10 \\
 \hline
 -5x \geq 0 \\
 \div -5 \quad \div -5 \text{ FUP IT!} \\
 x \leq 0
 \end{array}$$



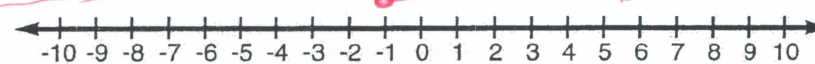
5. $-15 > -3x - 45$

$$\begin{array}{r}
 +45 \quad +45 \\
 -15 > -3x - 45 \\
 \hline
 30 > -3x \\
 \div -3 \quad \div -3 \text{ FUP IT!} \\
 x < 10
 \end{array}$$



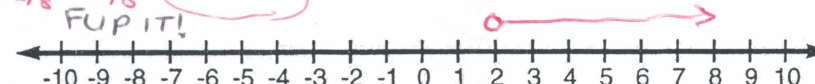
6. $-6(3t + 2) \leq 6$

$$\begin{array}{r}
 -18t - 12 \leq 6 \\
 +12 \quad +12 \\
 \hline
 -18t \leq 18 \\
 \div -18 \quad \div -18 \text{ FUP IT!} \\
 t \geq -1
 \end{array}$$



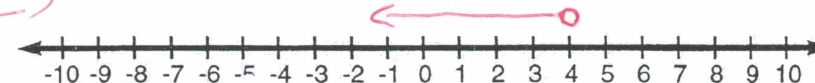
7. $5x - 1 > 9$

$$\begin{array}{r}
 +1 \quad +1 \\
 5x - 1 > 9 \\
 \hline
 5x > 10 \\
 \div 5 \quad \div 5 \\
 x > 2
 \end{array}$$



8. $4x - 7 < 9$


$$\begin{array}{r}
 +7 \quad +7 \\
 4x - 7 < 9 \\
 \hline
 4x < 16 \\
 \div 4 \quad \div 4 \\
 x < 4
 \end{array}$$



KISS UNDERCOVER

What is the approximate area of the foil wrapper covering a Hershey's Kiss?

Solve for x . Find your answers in the given list, and circle the corresponding letters. Read down columns of circled letters to reveal the three-word answer to the Kiss question.

 **Tip:** Check your answer to see if the inequality equation holds true. For example, if you calculate $x < 6$ for the equation $-4 + x < 2$, select a value less than 6 (e.g., 5) and substitute it for x in the equation: $-4 + (5) < 2 \rightarrow 1 < 2$, which is a true statement.

- | | |
|---|--|
| 1. $3x - 4 < 11$
$+4 \quad +4$
$3x < 15$
$\frac{3x}{3} < \frac{15}{3}$
$x < 5$ | 9. $9 - 8x < -55$
$-9 \quad -9$
$-8x < -64$
$\frac{-8x}{-8} < \frac{-64}{-8}$
$x > 8$ |
| 2. $-5x + 2 \geq -3$
$-2 \quad -2$
$-5x \geq -5$
$\frac{-5x}{-5} \geq \frac{-5}{-5}$
$x \leq 1$ | 10. $8x + 12 < 60$
$-12 \quad -12$
$8x < 48$
$\frac{8x}{8} < \frac{48}{8}$
$x < 6$ |
| 3. $4x + 10 < 50$
$-10 \quad -10$
$4x < 40$
$\frac{4x}{4} < \frac{40}{4}$
$x < 10$ | 11. $4 - 7x > -45$
$-4 \quad -4$
$-7x > -49$
$\frac{-7x}{-7} > \frac{-49}{-7}$
$x < 7$ |
| 4. $-3x + 32 < 53$
$-32 \quad -32$
$-3x < 21$
$\frac{-3x}{-3} < \frac{21}{-3}$
$x > -7$ | 12. $6 - 5x \leq -39$
$-6 \quad -6$
$-5x \leq -45$
$\frac{-5x}{-5} \leq \frac{-45}{-5}$
$x \geq 9$ |
| 5. $9x - 6 \geq 48$
$+6 \quad +6$
$9x \geq 54$
$\frac{9x}{9} \geq \frac{54}{9}$
$x \geq 6$ | 13. $-2x + 4 > 6$
$-4 \quad -4$
$-2x > 2$
$\frac{-2x}{-2} > \frac{2}{-2}$
$x < -1$ |
| 6. $10x - 92 < 18$
$+92 \quad +92$
$10x < 110$
$\frac{10x}{10} < \frac{110}{10}$
$x < 11$ | 14. $15 - 17x \leq -19$
$-15 \quad -15$
$-17x \leq -34$
$\frac{-17x}{-17} \leq \frac{-34}{-17}$
$x \geq 2$ |
| 7. $-11 - 11x > 33$
$+11 \quad +11$
$-11x > 44$
$\frac{-11x}{-11} > \frac{44}{-11}$
$x < -4$ | 15. $80 - 2x < 40$
$-80 \quad -80$
$-2x < -40$
$\frac{-2x}{-2} < \frac{-40}{-2}$
$x > 20$ |
| 8. $3x - 6 \geq 30$
$+6 \quad +6$
$3x \geq 36$
$\frac{3x}{3} \geq \frac{36}{3}$
$x \geq 12$ | 16. $4 + 30x \geq -146$
$-4 \quad -4$
$30x \geq -150$
$\frac{30x}{30} \geq \frac{-150}{30}$
$x \geq -5$ |

Column One

- (R) $x < -9$
 (F) $x < 5$
 (W) $x > -12$
 (I) $x \leq 1$
 (V) $x < 10$
 (D) $x > -11$
 (T) $x > 4$
 (E) $x > 20$
 (H) $x > 14$
 (V) $x > 40$

Column Two

- (P) $x > -13$
 (S) $x \geq -5$
 (Q) $x < 11$
 (B) $x > -19$
 (U) $x < -4$
 (L) $x > -3$
 (A) $x \geq 12$
 (R) $x > 8$
 (G) $x > -10$
 (E) $x < 6$

Column Three

- (U) $x < -4$
 (I) $x < 7$
 (X) $x > 42$
 (N) $x \geq 9$
 (C) $x < -1$
 (M) $x < -39$
 (H) $x \geq 2$
 (E) $x > -7$
 (N) $x > 35$
 (S) $x \geq 6$



Answer: _____